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Antimicrobial Studies of Triterpenoid Fractions from *Myxopyrum smilacifolium* Blume

Sudharmini, D.* and Ashalatha S. Nair

Department of Botany, University of Kerala, Kariavattom Campus, Thiruvananthapuram, 695581, Kerala, India
*email : sudhachandrababu@yahoo.com

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Abstract

Triterpenoids isolated from *Myxopyrum smilacifolium leaf* showed presence of ursolic acid (0.175mg/g). The triterpenoids showed antimicrobial activity in gram positive bacteria and *Candida sps.*

Keywords: *Myxopyrum smilacifolium,* Ursolic acid, HPLC, Antimicrobial activity.

1. Plant

Myxopyrum smilacifolium (Oleaceae) is an important medicinal plant widely used in indigenous system of medicine in India. It is a climbing shrub with small yellow flowers commonly known as 'chathuramulla'. A voucher specimen is deposited in the Herbarium of the Department of Botany, University of Kerala (No.KUBOT-2837).

2. Use in traditional medicine

The leaves are useful in vitiated conditions of kapha and vata, cough, asthma, rheumatism, cephalalgia, nostalgia, fever, otopathy, neuropathy and cuts and wounds. Roots are useful in scabies and prurigo in children [1]

3. Previously isolated classes of constituent

Iridoid glucosides, namely myxopyroside [2].

4. New constituents

Isolation of triterpenoid fractions by silica gel thin layer chromatography using the mobile phase petroleum: dichloroethylene: acetic acid (50:50:0.7) [3]., HPLC analysis of ursolic acid and antimicrobial activity by using filter paper disc diffusion method [4, 5].

5. Used materials

Ursolic acid standard was collected from Sigma, Aldrich, London and all microorganisms were obtained from

Microbial Type Culture Collection (MTCC), Chandigarh, India.

6. Results

Reported in figure1 and 2, and Table1.

7. Conclusions

Ursolic acid is found in the leaves of *Myxopyrum smilacifolium.* All the tripterpenoids from the plant showed antimicrobial activity against the gram positive bacteria *Staphylococcus aureus, Bacillus subtilis, Candida albicans* and C. *glabrata*. The antifungal activity was similar to the chemical fungicide.

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Table 1. Antimicrobial activities of isolated triterpenopid fractions of *Myxopyrum smilacifolium*.

Microorganisms		*TTR * 10(µg / disc)*					*Streptomycin / Fluconazole 2(µg / disc)*
		Fr1	*Fr2*	*Fr3*	*Fr4*	*Fr5*	
		Zone of inhibition (mm)[a]					
Escherichia coli	MTCC443	7	6.5	-	7.5	7	24
Klebsiella	MTCC109	-	-	-	7	7	18

pneumonia	MTCC 426	-	-	-	-	-	20
Proteus vulgaris	MTCC741	6.5	-	-	-	-	20
Pseudomonas	MTCC 103	-	-	-	-	-	19
aeruginosa	MTCC 733	6.5	6.5	-	8	7.5	20
Pseudomonas	MTCC 97	-	8	-	-	7	22
Fluorescens	MTCC 96	7.5	-	7	7.5	6.5	22
Salmonella tuphi	MTCC2940	8.5	6.5	6.5	7.5	6.5	21
Serratia marcescens	MTCC443	-	7	7	6.5	6.5	15
Staphylococcus	MTCC227	7	-	7.5	7	7	8
aureus	MTCC 3017	8	6.5	7	6.5	7	12
Staphylococcus	MTCC3019	-	8	8	7.5	-	11
aureus	MTCC1637	7	6.5	7.5	-	-	8.5
Bacillus subtilis							
Candida albicans							
Candida albicans							
Candida albicans							
Candida glabrata							

Values are the mean of three replicates. *TTR*- Triterpenoid*

[a] *Including the diameter of the filter paper disk (6mm).*

Fig 1. Ursolic acid HPLC profile at 205nm.

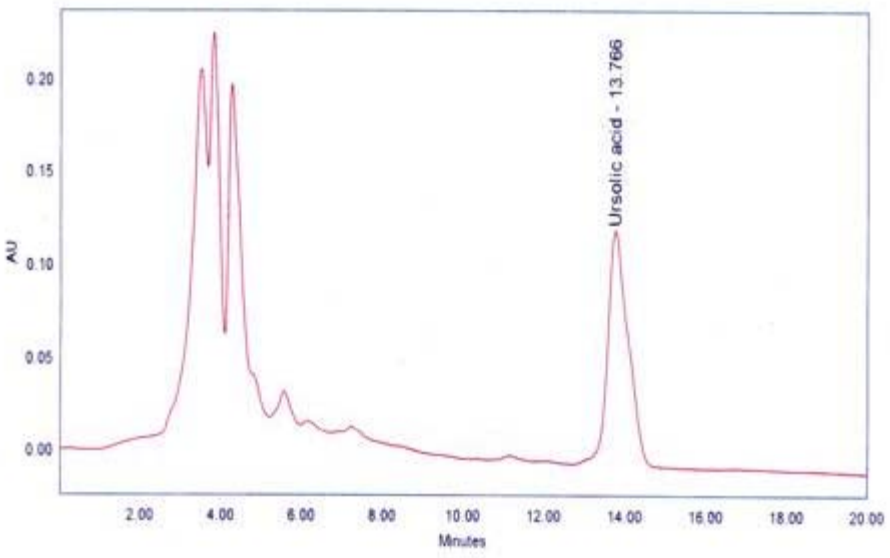

Fig 2. *Myxopyrum smilacifolium* fraction (hRf 20) HPLC profile.